Louisiana Department of Environmental Quality
Office of Environmental Services

STATEMENT OF BASIS
For
Activity Number: PER20040066
Permit No. 2573-V4

Chlorine/Cell Service Plant
Agency Interest No. 1409
The Dow Chemical Company – Louisiana Operations
Plaquemine, Iberville Parish, Louisiana

I. APPLICANT

Company
The Dow Chemical Company – Louisiana Operations
Post Office Box 150
Plaquemine, Louisiana 70765

Facility
Chlorine/Cell Service Plant
21255 Highway 1, Plaquemine, Iberville Parish, Louisiana
UTM Coordinates: 670.30 kilometers East and 3355.4 kilometers North, Zone 15

II. FACILITY AND CURRENT PERMIT STATUS

Brine from brine wells is purified at the Chlorine Plant before being electrolyzed in diaphragm cells to produce hydrogen, chlorine, and caustic soda. Diluted caustic soda solution is collected, used in the chlorine process, or pumped directly to the Caustic Plant for further processing. Hydrogen is compressed, purified, delivered via pipeline to Dow's electrical power generating system or sold. The wet gaseous chlorine is dried, compressed, purified, liquefied, and sent to storage tanks. The liquid chlorine is transported off-site via rail cars or gasified for internal chlorine users.

The Chlorine/Cell Service Plant is a part of the The Dow Chemical Company – Louisiana Operations. Active permits and pending applications for the operations at the facilities are listed as follows:

Permit Number	Units or Sources	Date Issued
2007-V2	Glycol I Plant	December 13, 2006
2008-V2	Polyethylene A Plant	October 4, 2001
2024-V3	Light Hydrocarbons III Plant	September 13, 2006
2025-V1	Vector SBC Plant	May 12, 2003
2048-V0	Polyethylene C Plant	March 1, 2002
2179-V4	Polyethylene B Plant	August 8, 2005
2188-V0	Solvents/EDC I Plant	January 30, 2004

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Permit Number	Units or Sources	Date Issued
2200-V1	Chlorinated Polyethylene Plant	December 1, 2004
2227-V4	Cellulose Plant	December 28, 2006
2267-V2	Power & Utilities Plant	August 28, 2006
2285-V2	Vinyl II Plant THROX Boilers	October 2, 2006
2573-V3	Chlorine/Cell Service Plants	August 23, 2003
2665-V6	Vinyl II Plant	April 2, 2004
2037-V0	Chlorinated Methanes Plant (CMP)	March 10, 2005
2203-V1	Glycol II Plant	June 20, 2005
2255-V0	Light Hydrocarbons II Plant	January 10, 2006
2235-V0	Railroad Tank Car Cleaning Facility	January 18, 2006
2190-V0	Environmental Operations Plant	May 31, 2006

III. PROPOSED PERMIT / PROJECT INFORMATION

Proposed Permit

A permit application and Emission Inventory Questionnaire dated October 6, 2004, as well as the revision dated January 26, 2007 and additional information dated February 27, 2007 were submitted requesting a Part 70 operating permit modification.

A notice requesting public comment on the permit was published in *The Advocate*, Baton Rouge, and in the local newspaper. A copy of the public notice was mailed to concerned citizens listed in the Office of Environmental Services Public Notice Mailing List. The application and proposed permit were submitted to the Iberville Parish Library. The proposed permit was submitted to US EPA Region 6. All comments will be considered prior to the final permit decision.

Project description

Dow requested a Part 70 operating permit modification for the plants to reconcile emissions from the plant to reflect updated emissions factors and current operating conditions.

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Permitted Air Emissions

Permitted emissions from the Chlorine/Cell Service Plant in tons per year are as follows:

Pollutant	Permitted	Proposed	Change
PM_{10}	3.85	14.93	+ 11.08
SO_2	0.09	0.16	+ 0.07
CO	0.27	2.07	+ 1.80
VOC	13.37	8.47	- 4.90
Chlorine	4.50	4.82	+ 0.32
Others	10.23	2.73	- 7.50

Prevention of Significant Deterioration (PSD) Applicability

Criteria pollutants do not increase above the PSD significant levels. PSD analysis is not required.

Maximum Achievable Control Technology (MACT) requirements

Purging and clearing equipment are MACT for equipment openings while minimizing sample size is MACT for the lab vent. Conducting a leak detection and repair (LDAR) program that meets all requirements of Louisiana MACT determination for Non-HON Equipment Leaks (March 30, 1995) is determined as MACT for fugitive emissions. No additional control was determined as MACT for TAP emissions from the scrubbers.

Air Modeling Analysis

Emissions from the incinerator are not expected to cause or to contribute to any National Ambient Air Quality Standards (NAAQS) or Ambient Air Standards (AAS) exceedances.

General Condition XVII Activities

The facility will comply with the applicable General Condition XVII Activities emissions as required by the operating permit rule. However, General Condition XVII Activities are not subject to testing, monitoring, reporting or recordkeeping requirements. For a list of approved General Condition XVII Activities, refer to Section VIII of the proposed Part 70 permit.

Insignificant Activities

All Insignificant Activities are authorized under LAC 33:III.501.B.5. For a list of approved Insignificant Activities, refer to Section IX of the proposed Part 70 permit. The applicability of the appropriate regulations is straightforward and provided in the Facility Specific Requirements Section of the proposed permit. Similarly, the Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable

terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

IV. PERMIT SHIELDS

The Permit does not include any Permit Shields

V. PERIODIC MONITORING

The Monitoring, Reporting and Recordkeeping necessary to demonstrate compliance with the applicable terms, conditions and standards are provided in the Facility Specific Requirements Section of the proposed permit.

VI. APLICABILITY AND EXEMPTIONS OF SELECTED SUBJECT ITEMS

ID No:	Requirement	Status	Citation	Explanation
EQT619, EQT645 EQT624 thru EQT640 EQT646, EQT647 EQT650 thru EQT656	LAC 33:III.2115 - Waste Gas Disposal	Exempt	LAC 33:III.2115.H.1.d	VOC concentration < 3000 ppmv
EQT620, EQT621, EQT623, EQT641, EQT642, EQT643 EQT657 thru EQT662	LAC 33:III.5109.A – MACT requirements	Does not apply	LAC 33:III.5109.A	Emits Class III TAP only. MACT is not required
EQT624, EQT625	40 CFR 64 - CAM	Exempt	40 CFR 64.2(b)(1)(vi)	Subject to continuous compliance demonstration requirements of the permit.
The above table provides explanation for both the exemption status or non-applicability of a source cited by 2 or 3 in the matrix presented in Section X of the permit				

VII. STREAMLINED REQUIREMENTS

The Permit does not include any streamlined requirements.

VIII. GLOSSARY

Best Available Control Technologies (BACT) - An emissions limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under this part which would be emitted from any proposed major stationary source or major modification which the administrative authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel

cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

CAM - Compliance Assurance Monitoring rule – A federal air regulation under 40 CFR Part 64

Carbon Black - A black colloidal substance consisting wholly or principally of amorphous carbon and used to make pigments and ink.

Carbon Monoxide (CO) – (Carbon monoxide) a colorless, odorless gas produced by incomplete combustion of any carbonaceous (gasoline, natural gas, coal, oil, etc.) material.

Cooling Tower – A cooling system used in industry to cool hot water (by partial evaporation) before reusing it as a coolant.

Continuous Emission Monitoring System (CEMS) – The total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent.

Cyclone – A control device that uses centrifugal force to separate particulate matter from the carrier gas stream.

Duct Burner – A device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Federally Enforceable Specific Condition - A federally enforceable specific condition written to limit the potential to Emit (PTE) of a source that is permanent, quantifiable, and practically enforceable. In order to meet these requirements, the draft permit containing the federally enforceable specific condition must be placed on public notice and include the following conditions:

- A clear statement of the operational limitation or condition which limits the source's potential to emit;
- Recordkeeping requirements related to the operational limitation or condition;
- A requirement that these records be made available for inspection by LDEQ personnel;
- A requirement to report for the previous calendar year.

Grandfathered Status- Those facilities that were under actual construction or operation as of June 19, 1969, the signature date of the original Clean Air Act. These facilities are not

required to obtain a permit. Facilities that are subject to Part 70 (Title V) requirements lose grandfathered status and must apply for a permit.

Heat Recovery Steam Generator (HRSG) – A steam generator that recovers exhaust heat from a gas turbine, and provides economizing and steam generation surfaces.

Hydrogen Sulfide (H_2S) - A colorless inflammable gas having the characteristic odor of rotten eggs, and found in many mineral springs. It is produced by the action of acids on metallic sulfides, and is an important chemical reagent.

Maximum Achievable Control Technology (MACT) - The maximum degree of reduction in emissions of each air pollutant subject to LAC 33:III.Chapter 51 (including a prohibition on such emissions, where achievable) that the administrative authority, upon review of submitted MACT compliance plans and other relevant information and taking into consideration the cost of achieving such emission reduction, as well as any non-air-quality health and environmental impacts and energy requirements, determines is achievable through application of measures, processes, methods, systems, or techniques.

NESHAP - National Emission Standards for Hazardous Air Pollutants –Air emission standards for specific types of facilities, as outlined in 40 CFR Parts 61 through 63

Nitrogen Oxides (NO_x) - Compounds whose molecules consists of nitrogen and oxygen.

Nonattainment New Source Review (NNSR) - A New Source Review permitting program for major sources in geographic areas that do not meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. Nonattainment NSR is designed to ensure that emissions associated with new or modified sources will be regulated with the goal of improving ambient air quality.

NSPS - New Source Performance Standards – Air emission standards for specific types of facilities, as outlined in 40 CFR Part 60

Organic Compound - Any compound of carbon and another element. Examples: Methane (CH_4), Ethane (C_2H_6), Carbon Disulfide (CS_2)

Part 70 Operating Permit- Also referred to as a Title V permit, required for major sources as defined in 40 CFR 70 and LAC 33:III.507. Major sources include, but are not limited to, sources which have the potential to emit: $\geq$10 tons per year of any toxic air pollutant; $\geq$25 tons of total toxic air pollutants; and $\geq$100 tons per year of regulated pollutants (unless regulated solely under 112(r) of the Clean Air Act) (25 tons per year for sources in non-attainment parishes).

PM_{10}- Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured by the method in Title 40, Code of Federal Regulations, Part 50, Appendix J.

Potential to Emit (PTE) - The maximum capacity of a stationary source to emit any air pollutant under its physical and operational design.

Prevention of Significant Deterioration (PSD) – A New Source Review permitting program for major sources in geographic areas that meet the National Ambient Air Quality Standards (NAAQS) at 40 CFR Part 50. PSD requirements are designed to ensure that the air quality in attainment areas will not degrade.